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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,148	05/14/2001	Takeshi Sasaki	NEC 142491	1115

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 03/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	SASAKI, TAKESHI
Examiner	Art Unit
Thoi V Duong	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 November 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 2-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 2-8 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) Other: _____

DETAILED ACTION

1. This office action is in response to the Amendment, Paper No. 6, filed November 25, 2002.

Accordingly, claims 2, 3, 4 and 5 were amended, claim 1 was cancelled, and new claims 7 and 8 was added. Currently, claims 2-8 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2 and 4-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Shin et al. (USPN 6,086,443) for the same reasons set forth in the last office action.

4. Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art as applied to claims 1, 2, and 4-6 above, and further in view of Teraguchi et al. (USPN 6,100,958) and Hiraichi et al. (USPN 6,204,907 B1) for the same reasons set forth in the last office action.

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Iwata et al. (JP 11-264987).

As shown in Figs. 1A, 1B, 1C, Applicant's Prior Art discloses a fabrication method of a liquid crystal display panel, comprising the steps of:

forming a seal member 4 on at least one of a pair of opposing transparent substrates such that said seal member surrounds a display area of said liquid crystal display panel;

arranging first spacers 16 on said display area on said substrate 1;

dropping liquid crystal 3 onto an area surrounded by said seal member on one of said transparent substrates;

forming a panel by sticking one of said transparent substrates on the other with said seal member in a vacuum chamber;

putting said panel under atmospheric pressure to deform said first spacers through a deformation of said panel; and

hardening said seal member after an inner volume of said panel becomes equal to a volume of said liquid crystal, and said seal member contains second spacers 5 mixed therein.

Applicant's Prior Art discloses a fabrication method of a LCD panel that is basically the same as that recited in claim 7 except that the initial size of the first spacer in a cell gap direction is not larger than an appropriate cell gap necessary to perform an appropriate liquid crystal display. As shown in Fig. 1, Iwata discloses a liquid crystal display panel comprising a first spacer 5 and a seal member 4 containing a second spacer 3, wherein the second spacer is formed of glass bead to maintain the cell gap of the periphery of both substrates 1 and the first spacer is formed of resin ball and has an initial size larger than the diameter of the second spacer for keeping the constant gap between the substrates. As shown in Figs. 3(A) and 3(B), Iwata also discloses that

when a compressive stress is generated at a central region of the panel, the first spacer is deformed so as to maintain a flat surface of the substrate and prevent an advance nature foam from generating (see Abstract and paragraphs 24-26). As known in the art, resin ball is generally used for the spacer to obtain elasticity and glass bead is hardly deformed under atmospheric pressure. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Applicant's Prior art with the teaching of Iwata by employing the first spacer having the initial size larger than the appropriate cell gap to maintain a constant cell gap and prevent a deformation of the substrates.

Response to Arguments

6. Applicant's arguments filed 11/25/2002 have been fully considered but they are not persuasive.

Applicant argued that the reference of Shin et al. merely shows a liquid crystal injection and is by no means related to the falling-drop method and the spacers 40 have plasticity rather than elasticity. The Examiner disagrees with the Applicant's remarks since the Shin's reference is employed for teaching the spacers which have an initial larger than the appropriate cell gap and deform from the initial size when the first and second substrates are forced to compress so as to maintain a uniform cell gap (col. 3, lines 37-39). Thus, it is obvious that the teaching is applicable to the fall-drop method wherein the two substrates are also compressed to form the display panel so as to obtain a uniform cell gap. In addition, from Merriam Webster's Collegiate Dictionary (Tenth Edition), *elasticity* is defined as the capability of a strained body to recover its

size and shape after deformation and *plasticity* is defined as the ability to retain a shape attained by pressure deformation. Accordingly, the spacers can have either elasticity or plasticity or both.

With respect to claim 3, Applicant also argued that Teraguchi et al. and Hiraishi et al. are merely cited to show the sealing portion with a spacer with no hint as to the falling-drop method. Again, the references of Teraguchi et al. and Hiraishi et al. are employed for teaching the spacers formed of hardly deformable material in the sealing portion such as glass beads so that they are not deformed when they are pinched between the substrates under atmospheric pressure so as to obtain a uniform cell gap at the periphery of the substrates. Thus, it is obvious that the teaching is applicable to the fall-drop method wherein the sealing portion is formed on one of the substrates to obtain a uniform cell gap at the periphery of the substrates.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong
03/01/2003

TOANTON
PRIMARY EXAMINER